

**DISTRIBUTED SWITCH FABRIC ARBITRATION****ABSTRACT**

[0059] The scalability and throughput for high-capacity communication switches is improved by providing a distributed arbitration algorithm which addresses the arbitration inefficiency of prior art systems. Distributed arbitration logic units in each satellite unit in a communication switch execute a protocol for computing a connection map for the switch fabric during each arbitration cycle. The protocol includes a plurality of phases including broadcasting backpressure parameters among the arbitration logic units, generating bids for access to switch fabric resources in each of the arbitration logic units utilizing information shared with other arbitration logic units, broadcasting the results of the bidding process, and configuring the switch fabric using the results.